SEMESTER EXAMINATION, APRIL-MAY, 2026

Course Name: -B.Tech(CSE-AIFM) **Semester:- 4th**

Paper Name: -Machine Learning for Finance **Paper Code:-NAM 406**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions. Each question carries **10 marks.**

Section - A
Multiple Choice Questions

1. Answer all the following questions. **5x3 =15**

(i) Machine Learning is a subset of :-
- a) Data Mining
- b) Artificial Intelligence
- c) Database Systems
- d) Networking

(ii) Gradient Descent is used for :-
- a) Maximise error
- b) Increase features
- c) Minimize loss
- d) Reduce data

(iii) Backpropagation is used for :-
- a) Forward pass
- b) Error correction
- c) Data cleaning
- d) Clustering

(iv) KNN uses :
- a) Distance measure
- b) Gradient
- c) Probability
- d) Kernel

(v) ID3 Algorithm is used for :
- a) Clustering
- b) Regression
- c) Classification
- d) Reinforcement

Section – B
Short Answer Questions

2. Answer any five of the following questions. **5x7=35**

i. Compare KNN algorithm and Decision tree, with the help of a diagram.

ii. Differentiate between Supervised & Unsupervised Learning, with examples.

iii. What are the various issues in Machine Learning?

iv. Describe Bayes' Theorem and its applications.

v. Explain Entropy and Information Gain.

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vi. A neuron has input vector X= [1, 2, -1], weight W= [0.4, -0.2, 0.3], bias = 0.2. Compute the net input and output using sigmoid activation.

vii. Write short notes on :-

a) Clustering and Outliers

b) EM Algorithm.

Section – C
Descriptive Questions

3. Answer any two of the following question. **2x10=20**

i) What are the ethical considerations in Machine Learning?

ii) Explain well-defined learning problems with suitable examples.

iii) Write short-notes on:-

(a) Single-layer Perceptron

(b) Naïve Bayes Classifier

(c) Adaptive Linear Neuron (Adaline)

(d) Data pre-processing techniques

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